

ABSTRACT OF THE DISCLOSURE

According to known methods, gas chambers of fuel cells are sealed by applying pressure. A small space always remains between the electrode and the membrane. According to the inventive sealing method, the bipolar plate and the membrane-electrode unit are bonded with a curable polymer. A gas-proof assembly is obtained by applying an adhesive bead on the outer periphery of the gas chamber and around the inner gas ducts. These assemblies can be stacked and bonded together according to the present invention to form a stack of polymer electrolyte fuel cells. The inventive assemblies which are composed of a bipolar plate and a membrane-electrode unit can be used in polymer electrolyte fuel cells and in corresponding electrolytic cells. These assemblies have such a small weight that they can be used in mobile devices in a particularly advantageous manner.